1997

Open learning and home study modes in undergraduate teaching: STS 1994-1996

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Publication Details

Roberts, R., Russell, S., Stevenson, L. & Caladine, R. (1997). Open learning and home study modes in undergraduate teaching: STS 1994-1996. Overview, 4 (1), 15-20.

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Abstract
The Department of Science and Technology Studies (STS) in the Faculty of Arts was the first unit at the University of Wollongong to act as a subject provider for Open Learning Australia and the first to use radio as a form of delivery. This paper outlines the development of the STS distance education and flexible delivery programs in the period 1994-1996.

Keywords
Distance Education, Open Learning, Home Study

Disciplines
Arts and Humanities | Social and Behavioral Sciences

Publication Details
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The review of this project was funded by the University's Educational Strategies Developement Fund.

Open Learning and Home Study Modes in Undergraduate Teaching: STS 1994-1996

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The use of distance education in Australian universities has grown substantially in the post-war era and rapidly since the early 1980s. Distance education is generally characterised by a separation of teacher and learner in time or space. A more recent trend has been the use of distance education resources and techniques to transform on-campus teaching with such kinds of developments commonly termed 'flexible delivery'.

The Department of Science and Technology Studies - now the Science and Technology Studies (STS) Program - in the Faculty of Arts was the first unit at the University of Wollongong to act as a subject provider for Open Learning Australia (OLA) and we believe the first to use radio as a form of delivery[1]. STS has since developed the materials used in its two OLA study units in order to flexibly deliver those same subjects to University of Wollongong students. This paper, one of the outcomes of a study funded through the University's Strategic Development Fund (SDF), outlines the development of the STS distance education and flexible delivery programs in the period 1994-96.

The STS Distance Education Program 1994-96

STS is an internationally recognised academic field which examines the origin, nature and impact of science and technology from a social science perspective. In 1993 it was suggested that the then STS Department at Wollongong provide one or more new subjects to replace an existing STS offering in the OLA program, and in 1994 the Department undertook to produce two study units modelled closely on the existing subjects STS100 *Science and Technology Studies: Introduction to Science and Technology in their Social Context* and STS112 *The Scientific Revolution: History, Philosophy and Politics of Science.* The study units became SCI14 *Introduction to Science and Technology Studies* and SCI15 *The Scientific Revolution.* While both units would rely on specially developed print materials, it was also agreed that SCI14 would be accompanied by a new 13-part radio series on ABC Radio National.

Under contract the Department was required to:

- run these study units for OLA in two of the four OLA study periods of 13 weeks each year from 1995;
- adopt specific assessment components including two assignments totalling 4,500 words and one piece of externally invigilated assessment - with the satisfactory completion of the invigilated work required for an overall pass;
- provide a student telephone liaison service for administrative and academic enquiries for at least 3/4 hour per student per study period.

In mid 1994 STS staff began preparing print materials for both study units, and scripts for the thirteen 50-minute radio programs for SCI14. A

separate contract between STS and the ABC covered the joint production of the series. The two study units ran for the first time in the June-September study period in 1995.

In September 1995 a further dimension was added when the material produced for the OLA study units was used for the first time to allow University of Wollongong students to take STS100, and its 200-level version STS200, and STS112 and STS212, in distance mode. These new subjects, known as STS Home Study (HS), used similar format and facilities to the OLA versions. HS subjects have since run in parallel with the OLA units - with the exception of the two summers, in which HS subjects have been offered alongside other STS subjects in Wollongong's 7 week Summer Session format.

Thus since late 1995 the two subjects have operated in three different modes and versions:

1 traditional on-campus mode using lectures and tutorials for students enrolled at the University of Wollongong (as STS100/200 & STS112/212);

2 in distance education mode for OLA enrolled students (as SCI14 & SCI15); and

3 in Home Study mode for students enrolled at the University of Wollongong (now designated STS103/203 & STS117/217).

The distance education and flexible delivery versions of STS100/200 were modified from an on-campus subject first run in 1989 and refined over the years since. Several STS staff have developed and taught material in this team-taught subject - in particular Dr Sharon Beder, Dr Stewart Russell and Associate Professor John Schuster. These three, in cooperation with Joe Gelonesi and other staff at ABC Radio National Open Learning, scripted and performed in the radio series. STS112/212 was developed in its current on-campus form by Associate Professor John Schuster.

Organisation

The STS distance education and flexible delivery program was organised as follows:

- the Head of Department, Professor Jim Falk, and an STS Distance Education Committee oversaw general developments, though major issues and decisions were referred to STS staff meetings;
- the Program Coordinator, Dr Rhonda Roberts, coordinated the activities of STS staff, and liaised with OLA and the ABC;
- two Subject Coordinators were responsible for subject development and delivery: Dr Stewart Russell for STS100 / SCI14 and Associate Professor John Schuster for STS112 / SCI15;
- a Subject Tutor was responsible for tutorial assistance to students - for much of the time this post has been held by Mr Lawrence Stevenson, an STS Masters graduate;
- STS Professional Officer Mr Lawrence Stevenson acted as OLA/HS Administrator and assisted in subject conversion and production of materials.

In practice the functions and level of work required in each position changed between the initial production period when contracts were being signed and subjects converted and the later delivery stage. Such kinds of activities are necessarily cyclical as subject content and assessment pieces have to be updated, new delivery techniques trialed, contracts and schedules renegotiated and many other aspects regularly evaluated and improved.

Enrolments and Retention Rates

From June 1995 to December 1996 the two subjects were run simultaneously in five separate sessions/ study periods and a total of 169 students enrolled. Of these 35 students deferred or withdrew, 71 passed and 63 failed. Of the students failing a subject, 58 did not complete the assessment. This high failure and non-completion rate is not inconsistent with the experience of other distance education providers. Nonetheless a number of modifications have been made and measures trialed and introduced in attempts to reduce that proportion. These include additional materials and a more active pattern of telephone tutorial use, linked in particular to signals from self-assessment tasks. And though we must observe equity requirements in our OLA program, it woud be useful to investigate electronic tutorials to facilitate interaction among students and between student and tutor. An informal trial of student e-mail access to the tutor and administrator evolved and in some respects demonstrated its potential.

Enrolment numbers were also affected by marketing problems. OLA practice in advertising the STS subjects has been the focus of much negotiation. Though STS is a social science field - and in Wollongong as often elsewhere it is based in an Arts Faculty - it attracts and is mandated to service the needs of students across a range of faculties. However in the OLA Handbook for 1995 and 1996 STS subjects only appeared in the Science schedule. Despite the Department's repeated attempts to get its units into the Arts schedule as well, it was not until the 1997 Handbook that they were listed as available to both sets of students. It is likely that OLA enrolments have suffered in the first two years as a result. In terms of HS mode, the Department decided early on that, until it could be established as to whether HS would draw students away from the on-campus subjects, advertising would be minimal. Despite this decision the HS program has become a popular mode. Of the total of 169 students who undertook distance mode in STS to December 1996, 88 were HS. Summer Session in particular now attracts large numbers: in December 1996 111 new HS enrolments were taken.

Delivery Techniques

A variety of delivery techniques were trialed in the two year period. Both subjects used a study guide, a book of selected readings, and prescribed texts - including two books for sections of STS103/SCI14 and one in STS117/SCI15 developed from transcripts of the on-campus lectures[2]. The study guides contained among other things an overview of the subject, a work schedule for the 13 weeks, assessment details, and extensive guidance on preparation and presentation of assignments. In STS103/SCI14 self-assessed tasks were used to provide students with practice in specific study skills and so that both the student and the tutor could check the student's level of comprehension at crucial points in the subject. The telephone service allowed students both to pursue administrative enquiries and to discuss content and assignments. In the first instance certain times were set aside for students to use the service and initiate contact. Later a more active telephone service was designed and implemented on the assumption it would cut the failure/dropout rate. From early 1996 scheduled telephone calls were made by the tutor to students at significant stages in the subject timetable, and at other times students were asked to report on their performance in self-assessed tasks. The more active approach was well received.

An important influence on curriculum design and media choice was the major difference in student profiles between OLA and HS. HS serviced students enrolled at the University of Wollongong. OLA's study units were open to enrolment from anyone who could afford the fees. We found that our OLA student population was spread geographically and could not be presumed to have access to facilities which were taken for granted on-campus such as a research library, email and computers. This major difference in profile was one of the many issues that had to be taken into account when the subjects were offered in parallel.

Review

In 1996 Roberts and Russell received SDF funds to review the 1994-96 period. The review included a survey of the relevant literature, compilation of enrolment and performance data, construction and administration of a student survey, and surveys of participating STS Program members. A report is firstly given of the specific details of the literature survey followed by a general summary of the findings.

There is an enormous and diverse body of material on distance education and flexible delivery issues[3]. It was decided to limit the literature survey to:

1 subject materials from STS and constituent or related disciplines;

2 evaluations of distance education and flexible delivery programs in similar disciplines;

3 information which could help improve STS materials or practices;

4 reviews of broader issues in distance education and flexible delivery which would help us compare and contextualise our experience.

1 A variety of Australian and international distance education providers were contacted and asked to supply copies of their subject materials. As an inducement they were sent STS Program materials in exchange. Material is still arriving, and we hope that we shall maintain contact with some

of these providers and explore issues of mutual interest.

2 We gathered: specific tools such as examples of survey questionnaires; concise evaluations of comparable STS and humanities and social sciences subjects and other selected OLA subjects; and general evaluative reports from overseeing institutions such as OLA. Of specific relevance was work by McIroy and Walker(1993), Cresswell(1994), and Autrichter, Evans and Morgan(1991) on issues relating to course evaluation. Wood's paper(1995) on constructing student questionnaires was of the most practical use in survey design.

3 An initial look at the available guidance on devising materials and practices elicited little of immediate assistance. With some notable exceptions most works were highly specific in nature and did not offer ideas or experience directly relevant to our aims and context. We found the following authors provided the best practical guidance on preparing printed materials: Rowntree(1994); Race(1992); Kember(1991); and Kember and Murphy(1994). Shorter pieces by Wood(1995), on study material design, and Stevenson, Sander and Naylor(1996), on shaping the role of the tutor, were worth reading. Major issues noted by most commentators were: levels of interaction between students and teachers; meaningful self-assessment tasks; access to resources; use of simple language; and use of detailed student profiles and needs in curriculum and media design.

4 To contextualise the STS experience, we also sought more general and theoretical material on distance education and flexible delivery issues. However the initial impression was that the literature contained a large number of descriptions of courses and providers' experiences which were relatively untheorised. Much did not yield pertinent generalisations or useful suggestions. Discussion with several distance education specialists confirmed this disappointing impression. The work by Dean and Caladine(1995) adds further weight to this view as they seek to fill the gap through the collaborative building of a theory of distance education.

The most useful general discussions found were by Bates(1995), Caladine(1993), Hodgson(1993), Moore and Kearsley(1996), Kember(1995), and Harasim *et al* (1996). They signal the importance of the following issues: intellectual property/copyright; industrial relations; quality of teaching/learning efficiency and effectiveness; media selection; staff development; student support; and student training in flexible learning skills. Bates(1995), Dhanarajan *et al.*(1994), and Jevons and Northcott(NBEET 1994), contribute material on cost-effectiveness. We also found extensive discussion on the models of distance education put forward by Keegan(1986), Holmberg(1989), Peters(1983), and Moore(1983).

General Discussion

Many issues indicated in the literature, but unfortunately usually without resolution were also raised in surveys of staff and students. They include: hidden costs and subsidies; intellectual property/copyright; industrial issues for different categories of staff; efficiency and effectiveness of teaching/learning; media selection; the need for appropriate staff development; and the need for student support services such as training in flexible learning skills.

We stress the crucial nature of the issues of costs and workloads for future planning. Our experience revealed that rigorous costing in the early stages was particularly difficult. Hidden costs such as increased workloads without full acknowledgment, and subsidies from other activities and funds, are still being discovered and documented. They affect both academic and general staff. For example, both the amount of teaching release and the amount and level of administrative support required for development and delivery were severely underestimated. Future STS ventures will certainly gain from the experience and from the increasingly routine nature of some of the development tasks, but it is still important to stress the need to isolate costs from revenue.

Clearly some of the costs and benefits cannot be quantified, let alone compared. For example, the positive publicity for the STS Program and field, and for the University of Wollongong, from regular exposure on national radio has been substantial[4].

Intellectual property/copyright issues were repeatedly raised in staff surveys and staff meetings. The forthcoming University of Wollongong policy document should address these concerns regarding distance education and flexible delivery materials, but there is still likely to be much negotiation needed over interpretation and detail.

The experiment has provided some insight into the complexities of long term implications for staff. We are especially concerned about the impacts on contract staff and casual teachers, whether involved directly in flexible delivery or not.

Another important organisational issue is the provision of incentives. At the very least staff should not be penalised for converting or developing subjects for flexible delivery. If staff are only granted teaching release in the development stages and are then immediately expected to take up new subjects to complete their teaching load, then they gain nothing for any increase in efficiency. New ways of calculating teaching loads need to be discussed at all levels.

Understandably many staff embarking on converting or developing subjects for flexible delivery only become aware of their own staff development requirements well into the project. Unit Heads and Deans will need to provide time for, and access to, staff development. Student development is also important. Provision must be made for the development of students as 'flexible learners'. Study skills programs need to be planned, resourced and implemented. And access to resources needs careful consideration, to minimise the disparity between on- and off-campus students.

Long term planning is required to ensure staff have access to the appropriate level and kinds of technology required in the development or conversion of subjects for flexible delivery. As well as hardware and software staff require substantial technical and administrative support.

The quality of teaching/learning must be monitored in both the conversion and delivery stages. It is very important to ensure that standards are maintained and that the off-campus student is not disadvantaged. An important part of ensuring quality in teaching and learning is close attention to media selection in curriculum design and the compilation and use of accurate student profiles. Low return rates of student surveys rendered them statistically inconclusive and in the future they will be modified in an attempt to attract greater response.

The development of the STS Distance Education Program has been discussed and we hope that the issues raised and the experiences described will feed into and improve the future practice of flexible delivery in this program as well as assist other departments and programs in making informed decisions in the consideration of developing or converting subjects for flexible delivery.

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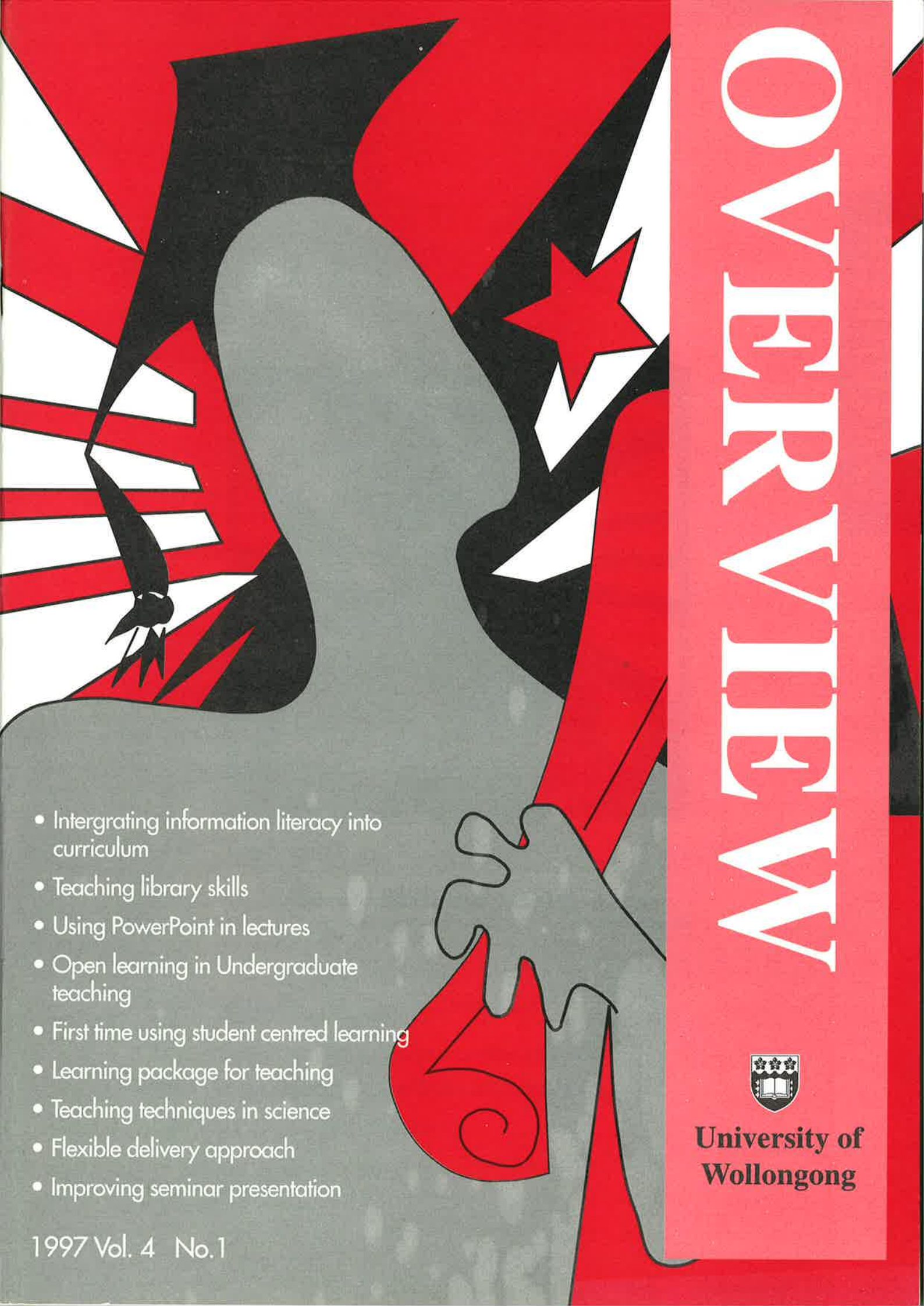

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1997 Vol. 4 No.1

University of Wollongong

Overview

Overview is a publication of the Centre for Educational Development and Interactive Resources (CEDIR) in association with the Teaching and Learning in Higher Education Research Group, University of Wollongong

Vol. 4 No.1 1997

Editor • Richard Caladine

Editorial Board • Anne Porter, Linda Tapsell, Maureen Bell

Layout and Printing • Printery Services, University of Wollongong

Cover Design • Brad Madge © 1993

ISSN 1320 3304

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